Moore County Public Works
System Development Fee Analysis (SDFA) FY22 Update | Public Review Version
Moore County, North Carolina

Public Review Version
February 5, 2022

Prepared for:

Moore County Public Works Department

Moore County, North Carolina

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Executive Summary

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The FY22 System Development Fee Analysis (SDFA) contained herein is performed per requirements of the North Carolina "Public Water and Sewer System Development Fee Act" (DFA). This version is for posting on the website for a 45-day review period[1]. The tapping fees for new water meter or sewer stub installation are calculated separately[2].

This report is a full update of the FY18 SDFA for purposes of implementing the results in FY22. In 2018, the calculated SDF's were not fully implemented to give the development community time to adjust to the new fee schedule. An interim update was performed in 2019 to implement the full calculated fee. All SDFA studies use a combined "buy-in" and incremental cost methodology using depreciated replacement cost of assets to determine system value plus eligible capital improvements over the next 10 years. The FY22 SDFA uses updated asset and capital improvements data for the analysis and system development fee calculation.

Nelsnick recommended implementing a new full-cost connection fee (FCCF) schedule that separates system development fees (SDF) from tap costs in FY19 (July 1, 2018) using DFA procedures. The new procedures allowed adding the cost of Capital Improvement Projects

[1] "**§ 162A-209. Adoption and periodic review.** (a) For not less than 45 days prior to considering the adoption of a system development fee analysis, the local governmental unit shall post the analysis on its Web site and solicit and furnish a means to submit written comments, which shall be considered by the preparer of the analysis for possible modifications or revisions.

[2] "**§ 162A-201. Definitions. (9) System Development Fee –** A charge or assessment for service imposed with respect to new development to fund costs of capital improvements necessitated by and attributable to such new development, to recoup costs of existing facilities which serve such new development, or a combination of those costs, as provided in this Article. The term includes amortized charges, lump-sum charges, and any other fee that functions as described by this definition regardless of terminology. **The term does not include any of the following:** a. A charge or fee to pay the administrative, plan review, or inspection costs associated with permits required for development. **b. Tap or hookup charges for the purpose of reimbursing the local governmental unit for the actual cost of connecting the service unit to the system. c. Availability charges.** d. Dedication of capital improvements on-site, adjacent, or ancillary to a development absent a written agreement providing for credit or reimbursement to the developer pursuant to G.S. 153A-280, 153A-451, 160A-320, 160A-499 or Part 3A of Article 18, Chapter 153A or Part 3D of Article 19, Chapter 160A of the General Statutes. e. Reimbursement to the local governmental unit for its expenses in constructing or providing for water or sewer utility capital improvements adjacent or ancillary to the development if the owner or developer has agreed to be financially responsible for such expenses; however, such reimbursement shall be credited to any system development fee charged as set forth in G.S. 162A-207(c).

(CIP) to the fee calculation. **Tables E.1 and E.2** summarize the maximum SDF calculation in FY22 using the requirements of the law.

Table E.1
Water System SDF

Meter Size	Current SDF	Calculated SDF
3/4"	$1,027	$1,573[3]
1"	$2,568	$3,933
2"	$8,215	$12,584
3"	$16,432	$25,168
4"	$25,675	$39,325
6"	$51,530	$78,650

Table E.2
Wastewater System SDF

Descriptions	Current SDF	Calculated SDF
Equivalent Dwelling Unit	$1,831	$2,414[4]

Note: The SDF is determined by water meter size for water system. For wastewater system, the SDF will be based on an equivalent dwelling unit[5]. Also, the wastewater SDF portion related to the interceptor/treatment plant should be tracked separately in the WPCP's Capital Project Reserve Fund.

Recommendations Summary of the FY18 SDFA

The following were recommendations for Moore County's consideration:

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[3] EMWD would only pay the Supply/Treatment portion with the appropriate credit. This calculated is $677 per EDU. The current SDF for EMWD is $656.

[4] The WPCP portion is calculated to be $1,658. The current portion is $780.

[5] "**§ 162A-205. Supporting analysis.** A system development fee shall be calculated based on a written analysis, which may constitute or be included in a capital improvements plan, that: (6) Calculates a final system development fee per service unit of new development and includes an equivalency or conversion table for use in determining the fees applicable for various categories of demand.

1. Refine MCPU and WPCP asset listing to help in managing asset replacement requirements.
2. Implement a phase-in approach by adopting a portion of calculated SDF, $627/EDU for water and $1,092/EDU for wastewater[6]. The SDF will be added to the admin, tapping and meter set fees.
3. Conduct a Public Hearing after 45-day review period but before July 1, 2018[7].
4. Adopt accounting procedures based on DFA requirements. (FY18)
5. SDF's collected will need to be accounted for and used for the following items in priority order, system debt then asset renewal/replacement.
6. Full Update of the SDFA every five years as required by legislation or earlier if significant changes in consumption or infrastructure occur.

Items 2 through 5 have been implemented. Item 1 is estimated to be completed in FY23.

Recommendations Summary of the FY19 SDFA Update

1. Refine MCPU and WPCP asset listing to help in managing asset replacement requirements prior to FY23 SDFA Full Update.
2. Implement the second and final phase of the SDF by adopting the calculated maximum SDF, $1,027/EDU for water system and $1,831/EDU for wastewater[8] system. As before, the SDF will be added to the admin, tapping and meter set fees.
3. Provide a 45-day review period of this SDFA with provision to take written comments either via email or United States Postal Service delivery.
4. Adjust the FY19 SDFA based on comments received and perform a Public Hearing after the 45-day review period.
5. Full Update of the SDFA every five years as required by legislation or earlier if significant changes in consumption or infrastructure occur.

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[6] "**§ 162A-207. Minimum requirements.** (a) Maximum. – A system development fee shall not exceed that calculated based on the system development fee analysis.

[7] "**§ 162A-209. Adoption and periodic review** (b) After expiration of the period for posting, the governing body of the local governmental unit shall conduct a public hearing prior to considering adoption of the analysis with any modifications or revisions.

[8] "**§ 162A-207. Minimum requirements.** (a) Maximum. – A system development fee shall not exceed that calculated based on the system development fee analysis.

With the exception of #1, all recommendations have been implemented. The asset listing is still a work in progress regarding the management of asset replacement.

Recommendations For FY22 SDFA Update

1. Provide a 45-day review period of this SDFA with provision to take written comments either via email or United States Postal Service delivery;
2. Adjust the FY22 SDFA based on comments received;
3. Implement recalculated SDF fees; and,
4. Perform full update of the SDFA every five years as required by legislation or earlier if significant changes in consumption or infrastructure occur. Especially as it relates to the cost and capacity of the wastewater expansion and the Deep-River water treatment plant
5. Implement fee for FY23 – FY26 based on Annual Budget preparation not to exceed Tables **3.1, 3.2 and 3.3**.

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Section 1
Introduction

Section 1 - Introduction

Background Information

Moore County Public Works Department (MCPW) currently operates water and wastewater systems serving a portion the County. Portions of the County are also presently served by others, including the Town of Aberdeen, the Town of Southern Pines, the Town of Carthage, the Town of Pinebluff, the Town of Robbins, Foxfire Village, Whispering Pines Village, Town of Cameron and Woodlake.

Water System

Moore County currently owns and operates, through MCPW, 11 water systems. These are generally depicted in Figure 1.1 and consist of the following:

1. Pinehurst
2. Seven Lakes
3. East Moore Water District
4. Vass
5. Hyland Hills
6. Hidden Lakes
7. The Carolina
8. Addor
9. High Falls
10. Robbins Davis Community Center
11. West Moore.

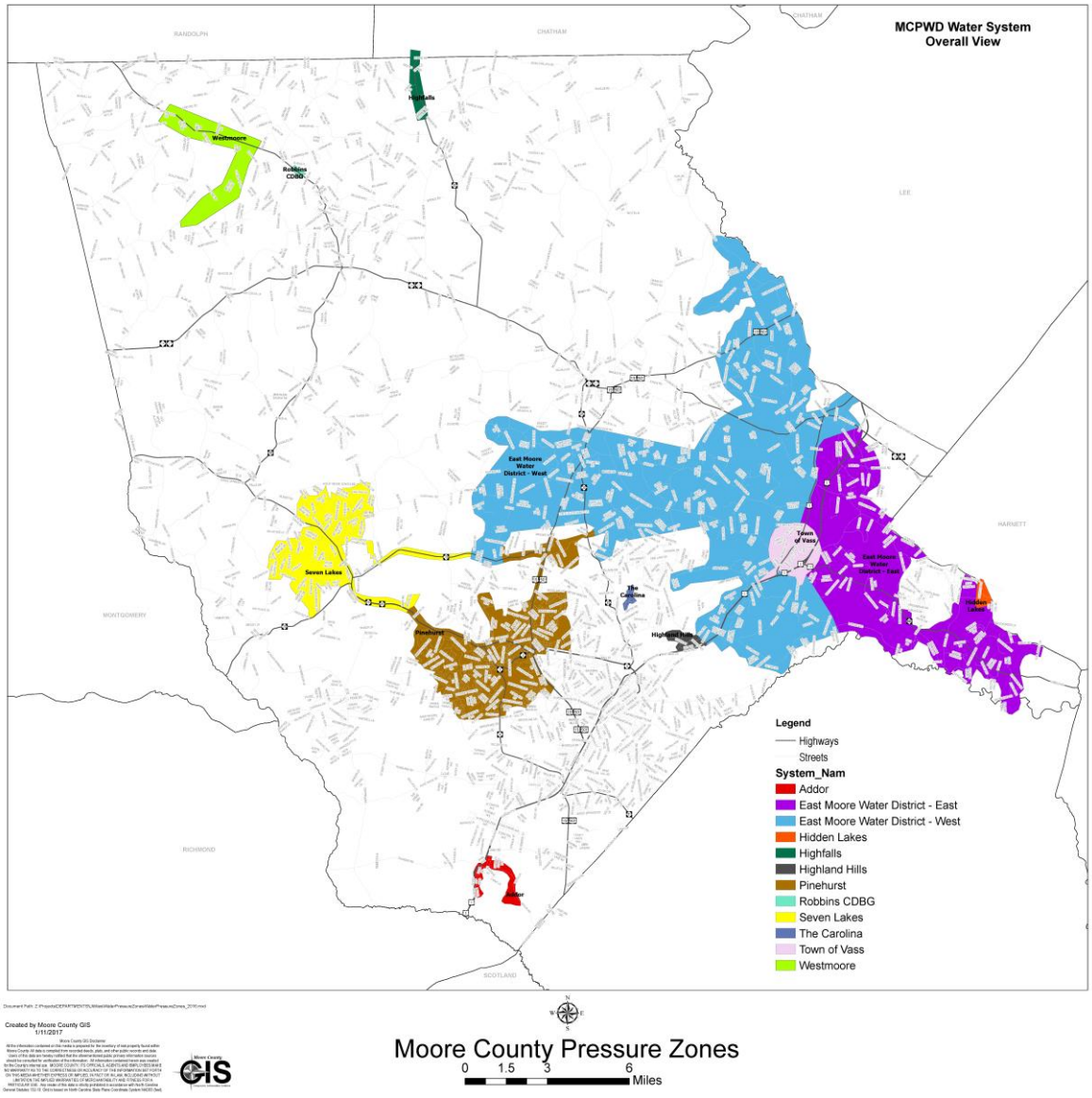
Please note that the East Moore Water District owns their water system but contracts with the Moore County Public Utilities (MCPU) to manage and operate it. These systems currently serve approximately 14,296 residential, and 704 commercial and industrial accounts[9]. The present system is comprised of approximately 503 miles of water mains, hundreds of valves and 2,367 fire hydrants[10].

[9] July 2021 billing database.

[10] Latest GIS files for water mains and fire hydrants received September 2021

Moore County owns and operates, through MCPW, 17 wells in Pinehurst that withdraw water from Middendorf Aquifer[11]. The County also purchases water from Harnett County, Town of Southern Pines, Town of Aberdeen, Town of Robbins and Chatham County to serve its water system.

Figure 1.1
MCPW Water Systems



[11] Pinehurst Local Water Supply Plan 2020.

Wastewater System

Moore County also owns and operates, though MCPW, the sanitary sewage collection system for Pinehurst, Vass, a small portion of the Addor community and the East Moore Water District. These systems are comprised of approximately 28 miles of force main, 207 miles of gravity sewers and 43 lift stations[12]. Together, these facilities serve approximately 8,550 residential accounts, 410 commercial and industrial as well as 35 County-owned accounts. Moore County also owns and operates, through the MCPW, a 10-million gallon per day (MGD) wastewater treatment plant which treats flows from the MCPW collection system and wastewater received from Southern Pines, Aberdeen, and Carthage and the school in Cameron.

This report provides the documentation for the water and wastewater System Development Fee (SDF) calculations and its fairness to new developments. The SDF covers the cost of the collection, distribution and treatment components of the systems. It includes the wastewater interceptor and treatment plant that reside within the Water Pollution Control Plant (WPCP) Enterprise Fund. A portion of the SDF for wastewater should be transferred to the WPCP Capital Reserve Fund related to the Treatment/Interceptor assets. The remaining assets are accounted for in the Moore County Public Utilities Enterprise Fund.

The SDF calculation should be periodically updated to demonstrate that it is still being appropriately applied to new developments. All **SDFs collected will need to be accounted for[13] and used for the following items in priority order, system debt then asset renewal/replacement.** The SDF should be tied to a specific facility and/or property at a specific capacity. In case of future changes, including the possible subdivision of property, Moore County will assign the capacity based on the modification requested by the owner. If additional capacity is requested, the SDF will be based on the latest SDFA calculation at that time and applied to the additional capacity, only.

Maintenance, Extension and Expansion

Maintenance of system components allows for extending the useful life of infrastructure and increasing value. Extension projects allow for serving new areas not currently served and expansion projects allow for more customers or volume within an existing service area. The primary funding for capital projects typically comes from three sources: debt, system revenues and connection fees collected.

[12] Moore County Water Pollution Control Plant Wastewater Annual Performance Report FY20

[13] **§ 162A-211. Use and administration of revenue.** (d) System development fee revenues shall be accounted for by means of a capital reserve fund established pursuant to Part 2 of Article 3 of Chapter 159 of the General Statutes and limited as to expenditure of funds in accordance with this section.

Data Sources

For this study, the data sources included the FY22 infrastructure/asset listing, – FY20 and FY21 Annual Comprehensive Financial Reports (ACFR), monthly water and wastewater billing volumes, FY22 Adopted Budgets, existing debt amortization schedules, proposed project costs and the latest US Census.

Acknowledgements

The development of this report was made possible through assistance of the Moore County staff. This included provision of data by Mr. Randy Gould, Ms. Linda Matthews, Ms. Kris Klug, Mr. Brian Patnode and Ms. Toni Skellington. Several other Moore County team members provided valuable information and assistance throughout this evaluation. Contributions from Mr. Stephen Morgan, Ms. Caroline Xiong and Ms. Mary Munz are greatly appreciated and acknowledged as well.

Definitions

The following definitions are used as part of this study.

Capital Improvements Program **(CIP)** – A listing of planned water and wastewater systems projects and their anticipated costs, design and construction schedule provided by the County and utilized when appropriate in these evaluations.

Collection Component – A component of the wastewater system that is used to transport wastewater from a customer to the treatment plant and includes sewers, interceptors, trunk lines, Lift stations and any associated storage or other buildings.

Connection Fee – A fee charged to new customers or an existing customer requesting an expanded service. The connection fee comprises of the **tap fee**, (the cost to install a meter or sewer connection) and a **system development fee** (the fair share of the system value based on anticipated usage of the connection).

Book Value – The value of an asset that is carried on the County's balance sheet. This may also be referred to as its acquisition cost.

Net Book Value – The value calculated by taking the acquisition cost (book value) of an asset minus the accumulated depreciation.

Depreciation – The reduction of value of physical assets for accounting purposes. There is a strong relationship between an asset's useful life and the time it takes the asset to reach a zero-book value[14].

[14] A physical asset would usually have usefulness after being fully depreciated; however, when used in some connection fee methodologies, the depreciated asset value provides a more conservative approach by providing a lower system value.

Net Present Value – The current value of a stream of future payments and/or assets using an acceptable discount rate.

Developer Contribution – A contribution of physical assets to Moore County for either the water or wastewater systems. These assets meet the needs of a specific development and do not typically add additional system-wide distribution or collection capacity. These assets will need to be replaced or upgraded by Moore County upon completion of their useful life.

Developer Project or Improvement – A water or wastewater system project or improvement that serves a specific development. These are usually required as part of the development regulations of the community. These typically become a developer contribution.

Discount Rate – The interest rate used in determining net present value for future assets. Generally, the interest rate is set at an expected inflation rate or revenue bond rate and is used to reflect the time value of money.

Distribution Component – A component of the water system that is used to provide potable water to the customer and includes transmission lines, pumping stations, storage tanks, additional in-distribution treatment[15], meters[16] and any associated storage or other buildings.

Equivalent Dwelling Unit (EDU) – A representative average or peak volume of a single-family household. This volume symbolizes consumption of a $^{5}/_{8}$-inch or $^{3}/_{4}$-inch meter used to serve a typical single-family household. This may be used as the basis for calculating the potential capacity of larger meters in terms of EDU's.

Construction-in-progress – Projects that have not been completed but started. They do not appear on the asset listing of Moore County. If the completion date extends beyond a single year, they may also be found on the CIP.

Specialized Contribution – A contribution that is not a developer contribution. These contributions may be in the form a public-private arrangement or a public-public arrangement (intergovernmental agreement). They are treated like a developer contribution in that they are not included in the connection fee calculations. However, unlike developer contributions, system capacity may be added. In this situation, the cost of the capacity may require a credit depending on funding source.

[15] Treatment within the distribution system is needed to maintain water quality standards. These facilities are not for the treatment of raw water.

[16] The initial meter is paid for up front by the customer and not included in the system value for the connection fee calculation; replacement meters, however, are included.

System Project or Improvement – A water or wastewater project that provides additional capacity or replaces existing capacity that serves beyond a single development.

Wastewater Treatment Component – A component of the wastewater system used to process raw sewage into a dischargeable form and includes treatment plants, discharge facilities, associated buildings and storage and lift stations at the treatment plants.

Water Treatment Component – A component of the water system used to process raw water into a potable form and includes supply, raw water transmission, treatment plants, associated buildings, storage and pumping stations at the treatment plants.

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Section 2

System Development Fee Calculation

Section 2 – System Development Fee Calculation

Methodology

The methodology recommended to compute the SDF for Moore County in this study is based on the combination of the buy-in approach using net book value (NBV) of the assets, provided by Moore County Finance Department and incremental approach using planned projects. The NBV is converted to a depreciated replacement cost using expected inflation since acquisition. SDF revenues generated from incremental approach (planned projects) must be expended on the construction of capital improvements. SDF revenues generated from the buy-in approach can be expended on the debt and rehabilitation of existing assets[17].

The latest capital asset listing used to conduct these evaluations was provided by the County. The acquisition cost of the assets was then adjusted based on depreciation as of June 30, 2021. These values are provided in the **Appendix A** of this report.

The calculations performed in this Study break out water system costs into two service districts. The primary district is the Moore County Public Utility (MCPU) service area. This district has detailed information on purchased water, water wells, distribution/collection system assets and debts for water and sewer collection system costs. The other district is the East Moore Water District (EMWD) service area. Assumptions have been made to determine a magnitude cost for the EMWD. ***Due to the debt payment requirements in the EMWD and resulting credit the distribution system component of the SDF is currently***

[17] "**§ 162A-211. Use and administration of revenue.**
(a) Revenue from system development fees calculated using the incremental cost method or marginal cost method, exclusively or as part of the combined cost method, shall be expended only to pay:
(1) Costs of constructing capital improvements including, and limited to, any of the following: a. Construction contract prices. b. Surveying and engineering fees. c. Land acquisition cost. d. Principal and interest on bonds, notes, or other obligations issued by or on behalf of the local governmental unit to finance any costs for an item listed in sub-subdivisions a. through c. of this subdivision. (2) Professional fees incurred by the local governmental unit for preparation of the system development fee analysis. (b) Revenue from system development fees calculated using the buy-in method may be expended for previously completed capital improvements for which capacity exists and for capital rehabilitation projects. The basis for the buy-in calculation for previously completed capital improvements shall be determined by using a generally accepted method of valuing the actual or replacement costs of the capital improvement for which the buy-in fee is being collected less depreciation, debt credits, grants, and other generally accepted valuation adjustments.

not warranted. As such, the EMWD distribution assets and capacity are not included in the overall system value. However, the supply component SDF can be charged.

Moore County also owns and operates a sewage collection system with lift stations. The SDF related to wastewater is for the collection system assets accounted for by the MCPU Enterprise Fund but also includes the treatment plant and interceptor accounted for by the WPCP Enterprise Fund. **We recommend that the wastewater SDFs collected and deposited into the Capital Projects Fund be tracked separately by collection system and treatment/interceptor for MCPU and WPCP, respectively.**

The starting point in calculating the system's SDF is to determine the value of the system. This will include all assets with a life span of 10 or more years when first constructed. The total value of a system is the sum of the existing assets, construction-in-progress, planned projects, and any cost attributed to obtaining existing debt to finance Moore County's projects. ***However, developer and specialized contributions, grants and costs associated with planned projects are not included in the overall system value.***

Existing Assets

Moore County's Finance Department keeps track of revenues, expenses, investments and capital assets for the entire County Government including the Moore County Public Works Department. The capital asset listing includes a description of the asset as well as an acquisition date, life of asset, acquisition cost, depreciation to-date, NBV and depreciated replacement value of asset.

Assets with useful life of less than 10 years as well as those fully depreciated have been excluded to determine system value for the system development fee calculation. The assumption is that assets with less than 10 years of useful life should be considered an operational capital expense as opposed to a system capital expense.

Appendix A contains a listing of the WPCP and MCPU capital assets provided by the County and used for this Study. The net asset values are summarized in **Table 2.1 and Table 2.2**. Also, the percentages shown in these tables are calculated based on the depreciated replacement value of assets.

Table 2.1
Moore County's Water System FY22 Value Using Depreciated Replacement Value Including Assets with Useful Life of 10 and More Years

Description	Water
System-Wide Percent of Assets Water vs. Wastewater	42.3%
Percent of Water Assets that are part of Distribution	75.9%
Shared Water and Wastewater Systems Assets	$172,938
Shared Water Distribution and Wells/Purchased Water Assets	$0
Distribution	$21,345,070
Shared with other components	$131,200
Total Distribution (MCPU)	$21,476,270
Treatment	$6,790,234
Shared with other components	$41,737
Total Treatment (MCPU)	$6,831,971

Table 2.2
Moore County's Wastewater System FY22 Value Using Depreciated Replacement Value Including Assets with Useful Life of 10 and More Years

Description	Wastewater
System-Wide Percent of Assets Wastewater vs. Water	57.7%
Percent of Wastewater Assets that are part of Collection	22.3%
Shared Both Water and Wastewater Systems	$235,416
Shared Both Wastewater Collection and Treatment	$0
Collection	$8,557,101
Shared with other components	$52,597
Total Collection (MCPU)	$8,609,698
Treatment	$29,742,802
Shared with other components	$182,818
Total Treatment (WPCP)	$29,925,620

The above tables include shared assets. These assets may serve both water and wastewater customers, e.g. the public utility administrative building or certain service vehicles. Assets may also fall into a category where they are shared between collection/treatment or

distribution/treatment components. There were no assets identified in Moore County that fell into the second category for this Study.

Projects-in-Progress

There are a few projects-in-progress listed in the FY20 ACFR. These have not been entered onto the fixed asset listing but are included in the SDF fee calculation. These numbers will be updated when the FY21 CAFR is made available. The approximate value of these projects is $359,832 for the Vass Phase II Sewer System and $109,100 for the East Moore Water District distribution system. There were no projects-in-progress for the water pollution control plant.

Capital Improvements Program

Moore County has developed a capital improvements program (CIP) for renewal, expansion and extension of the water and wastewater systems. DFA legislation allows inclusion of planned improvements to calculate SDFs. Therefore, the cost associated with the CIP will need to be recovered by both new and existing customers.

The total value of the Water System CIP is approximately $39.8 million over a 10-year period[18]. A reduction of $2.4 million is assumed for anticipated ARP grant funds. This includes both water distribution, supply and treatment projects. The Deep River water supply project with an estimated cost of $30.6 million is included in the SDF calculation as of this report. This will add approximately 3.0 mgd of water supply[19]. **Table 2.3** presents the planned projects that have been included in the SDF calculations for the Moore County water system.

Table 2.4 presents the planned projects that have been included in the SDF calculations for the Moore County wastewater system. Like the water system, it is anticipated that ARP funds will be available and reduce the total that are used in the SDFA calculation. The wastewater system is anticipated to have $60.7M of new assets added driven primarily by the treatment plant expansion of $38M (Design and Construction). The SDFA value is adjusted by $2.0M in anticipated ARP grant funds.

[18] "**§ 162A-205. Supporting analysis.** (7) Covers a planning horizon of not less than 10 years nor more than 20 years.

[19] The treatment plant may only have 2.0 mgd upon initial construction but would be easily expanded for future demand. Using 3 mgd will provide a more conservative estimate of cost per EDU for the SDFA. This will be updated in the next SDFA scheduled after the Deep-Water Plant is completed and actual information is available.

Table 2.3
Water System 10-Year CIP

WATER SYSTEM PROJECTS	Cost	Component
Vehicles	1,800,000	Water Distribution
Water Meter Replacements	850,000	Water Distribution
Water Main Replacement (Asbestos Cement Pipe, Cast Iron Pipe, Aged Pipe, etc…)	2,700,000	Water Distribution
Fire Hydrant Replacements	150,000	Water Distribution
General Extensions of Service	1,100,000	Water Distribution
Easement Clearing, Root Control & Odor Control	1,100,000	Water Distribution
Paint Elevated Tanks (Cannon Park)	300,000	Water Distribution
Paint Elevated Tanks(Monticello)	300,000	Water Distribution
Paint Elevated Tanks(Seven Lakes North)	300,000	Water Distribution
Deep River Water Source Project	30,600,000	Water Treatment
Linden Road Well (Longfellow)	450,000	Water Treatment
Chloramines Booster Station for Hwy. 211 Booster Pump Station	107,834	Water Treatment
ARP Funds for water supply	-400,000	Water Treatment
ARP Funds for water distribution replacement	-2,000,000	Water Distribution
	37,357,834	

Table 2.4
Wastewater System 10-Year CIP

WASTEWATER SYSTEM PROJECTS	Cost	Component
Interceptor rehab & repai	2,399,000	WRF
Morganton Rd Interceptor Construction	3,192,000	WRF
PC #1 & #3 Valve Vaults	550,000	WRF
Influent Flow Meter & RSPS Bypass construction	625,000	WRF
Sand Filter shelter/canopy	280,000	WRF
RSPS VFD/PLC replacement	315,000	WRF
RSPS Sluice Gate replacement	430,000	WRF
Clarifier Covers ([6] IC's & FC's)	120,000	WRF
Upgrade to Bio-solids storage canopy & new SHU canopy	500,000	WRF
Sand Filter skimmer systems	100,000	WRF
Replacement vehicles - Op's - Maint - SHU - Op's	305,000	WRF
Presses #1 & #2 rehab	115,000	WRF
Sand Filter carriage reehab	350,000	WRF
Wier replacement on Clarifiers (9)	100,000	WRF
RSPS Bar-screen replacement (2)	700,000	WRF

Table 2.4
Wastewater System 10-Year CIP (Continued)

WASTEWATER SYSTEM PROJECTS	Cost	Component
Engineering study plant expansion	400,000	WRF
Plant expansion design	3,000,000	WRF
RSPS pump #1 & #2 replacement	450,000	WRF
RSPS pump #3 & #4 replacement	450,000	WRF
WPCP roof replace/repair	200,000	WRF
WPCP expansion - construction	35,000,000	WRF
Southern Pines #4 station upgrade	1,500,000	WRF
Southern Pines #4 force main replacement	1,500,000	WRF
Structural coating on WPCP basins/equipment	750,000	WRF
replacement vehicle (dump)	100,000	WRF
replacement vehicles (Op's & Maint)	125,000	WRF
Raw Sewage upgrade	1,800,000	WRF
Southern Pines #4 upgrade	1,500,000	WRF
Southern Pines #4 force main replacement	1,500,000	WRF
Lift Station 15-1 Replacement (With Existing GR T3 Pump)	250,000	Collection
Lift Station 3-2 Replacement	358,079	Collection
Lift Station 8-1 Replacement	366,000	Collection
Lift Station 4-2 Replacement	360,000	Collection
Sewer Rehabilitation(CCTV Detection and Replacement/Repairs)	1,650,000	Collection
Mini Excavator	111,883	Collection
Lift Station 3-3 Replacement	358,000	Collection
Vac-Truck Replacement	900,000	Collection
ARP Funds for WPCP	-2,000,000	WRF
ARP Funds for Collection	0	Collection
	60,709,962	

Debt Cost

Moore County has incurred debt to pay for construction of several existing facilities. Debts for the EMWD and the WPCP have been excluded from the MCPU water system's SDF calculations. New debt for the Deep-Water supply project and the Wastewater Treatment Plant expansion have been anticipated.

Table 2.5 summarizes total system debt payments for both water and wastewater systems. The total interest payment included in these evaluations is approximately **$18,616,090**. The net present value (NPV) in FY23 of this cost is calculated at approximately **$12,084,401** using a 4-percent per year discount rate. The resulting NPV of the debt costs of approximately **$5,661,275** and **$6,423,125** can be added to the water and wastewater systems, respectively.

Table 2.5
Moore County's Debt for Water and Wastewater Systems

Fiscal Year	Water		Wastewater		Total		Total Debt Payment
	Principal	Interest	Principal	Interest	Principal	Interest	
2023	$828,898	$411,783	$834,455	$459,850	$1,663,353	$871,633	$2,534,985
2024	$798,913	$393,244	$844,455	$420,850	$1,643,368	$814,094	$2,457,461
2025	$821,913	$372,313	$864,455	$381,350	$1,686,368	$753,663	$2,440,031
2026	$1,115,178	$539,616	$1,373,948	$691,850	$2,489,125	$1,231,466	$3,720,591
2027	$1,141,772	$516,328	$1,400,623	$643,924	$2,542,396	$1,160,253	$3,702,648
2028	$1,167,415	$486,226	$1,427,389	$594,909	$2,594,804	$1,081,134	$3,675,939
2029	$1,191,108	$460,731	$1,449,246	$544,801	$2,640,354	$1,005,532	$3,645,886
2030	$1,222,850	$434,678	$1,476,196	$493,852	$2,699,046	$928,530	$3,627,575
2031	$1,170,730	$407,708	$1,513,239	$441,808	$2,683,969	$849,517	$3,533,486
2032	$583,574	$380,241	$1,540,378	$388,170	$2,123,952	$768,411	$2,892,363
2033	$602,469	$364,366	$1,562,613	$342,935	$2,165,082	$707,300	$2,872,383
2034	$616,418	$348,197	$654,946	$297,002	$1,271,363	$645,199	$1,916,563
2035	$630,419	$331,396	$612,377	$287,571	$1,242,797	$618,966	$1,861,763
2036	$654,475	$314,553	$565,454	$280,039	$1,219,929	$594,591	$1,814,520
2037	$663,585	$296,880	$573,087	$272,405	$1,236,673	$569,285	$1,805,957
2038	$677,751	$278,514	$580,824	$264,668	$1,258,575	$543,182	$1,801,757
2039	$696,974	$259,692	$588,665	$256,827	$1,285,639	$516,519	$1,802,157
2040	$716,253	$240,212	$596,612	$248,880	$1,312,865	$489,093	$1,801,957
2041	$730,590	$220,075	$604,666	$240,826	$1,335,256	$460,901	$1,796,157
2042	$749,985	$199,480	$612,829	$232,663	$1,362,814	$432,143	$1,794,957
2043	$684,440	$178,225	$621,103	$224,390	$1,305,542	$402,615	$1,708,157
2044	$693,955	$159,710	$629,487	$216,005	$1,323,442	$375,715	$1,699,157
2045	$708,531	$140,934	$637,986	$207,507	$1,346,516	$348,441	$1,694,957
2046	$713,168	$121,697	$646,598	$198,894	$1,359,767	$320,591	$1,680,357
2047	$352,869	$102,396	$655,327	$190,165	$1,008,196	$292,561	$1,300,757
2048	$357,632	$97,633	$664,174	$181,318	$1,021,807	$278,951	$1,300,757
2049	$362,460	$92,805	$673,141	$172,352	$1,035,601	$265,156	$1,300,757
2050	$367,354	$87,911	$682,228	$163,264	$1,049,582	$251,176	$1,300,757
2051	$372,313	$82,952	$691,438	$154,054	$1,063,751	$237,006	$1,300,757
2052	$377,339	$77,926	$700,773	$144,720	$1,078,112	$222,646	$1,300,757
2053	$382,433	$72,832	$710,233	$135,259	$1,092,666	$208,091	$1,300,757
2054	$387,596	$67,669	$719,821	$125,671	$1,107,417	$193,340	$1,300,757
2055	$392,829	$62,437	$729,539	$115,954	$1,122,367	$178,390	$1,300,757
	$22,934,186	$8,601,359	$28,438,309	$10,014,731	$51,372,495	$18,616,090	$69,988,585
Discount Rate		4.0%		4.0%			
NPV		$5,661,275		$6,423,125		$12,084,401	

Total Systems Value

Tables 2.6 and 2.7 summarize Moore County's total systems' values[20]. The total water system value after adjusting for contributed assets and components with a useful life of 10 years or less is approximately **$65,827,350**. This includes **$22,576,270** of distribution facilities, **$37,589,805** in existing/planned supply and **$5,661,275** of applicable debt costs. The total wastewater collection system value after adjusting for contributed assets and components with a useful life of less than 10 years is approximately **$94,747,159** with a treatment value of **$79,242,620** plus **$9,081,414** in collection **$6,423,125** in debt related cost.

Table 2.6
Moore County's Water System Value

Total Water System Value	Cost (in FY23$)
Distribution	$22,576,270
Water Purchase/Wells	37,589,805
Financing Cost	5,661,275
TOTAL	**$65,827,350**

Table 2.7
Moore County's Wastewater System Value

Total Wastewater System Value	Cost (in FY23$)
Collection	$9,081,414
Treatment	79,242,620
Financing Cost	6,423,125
TOTAL	**$94,747,159**

Equivalent Dwelling Unit (EDU) Determination

Public water systems, especially smaller systems, mainly serve single-family residences. On average, single-family residential customers use a similar quantity of water during the day and their water-use pattern remains similar and uniform. Therefore, when designing and evaluating water systems, non-residential and multi-family water demands are normally compared to the typical quantity of water a single-family residential unit consumes. The

[20] For purposes of the System Development Fee Analysis, the calculation estimates FY22 value for purposes of setting the fee and includes FY21 fixed assets, interest payments for the life of outstanding loans, and planned capital improvements. These items are brought to FY22 using a 4% discount (interest) factor.

term equivalent dwelling unit (EDU) refers to this typical water use and forms the basis of these comparisons.

The peak month average day water EDU for Moore County was established by taking an average gallon per day per person (73 gpd) from FY21 State DNR records multiplied by the average number of persons per housing unit for Moore County identified from the US Census (2.41) and applying a peaking factor of 2.0. This equates to 351.9 gallons of water per day needed for a typical dwelling unit. Wastewater is assumed to return to the system at a rate of 90% of water metered or 316.7 gallons. **Table 2.8** summarizes these EDU calculations for water and wastewater systems. These are used for the FY22 SDF calculation.

Table 2.8
Moore County's Water and Wastewater Systems EDU Calculation

Item	Calculation Item	Value	Units	Source/Calculation
A	Average Consumption per person per day	73	GPD	State DNR Records
B	Persons per dwelling unit (DU)	2.41	Persons	US Census 2015-2019 QuickFacts
C	Average DU usage (gallons per day)	175.9	GPD	A*B
D	Peaking Factor	2.0		System records
E	Peak Water Consumption Per DU	351.9	GPD	C*D
F	Return Factor	90%		Consultant Assumption
G	Peak Wastewater Consumption Per DU	316.7	GPD	E*F

Capacity Determination

The capacities of the water distribution and treatment and the wastewater collection and treatment estimated for these financial computations are summarized in the following tables. Please note that these values are general in nature and are not meant to represent design engineering values. **Table 2.9** outlines the calculation to move from the wastewater permitted capacity provided as a peak month average day to a peak day.

The goal here is to identify the capacity of the system components available for customers use in a general sense. Since system design incorporates infiltration and inflow considerations these elements must also be removed. Finally, since the SDF is based on a typical peak day use by a customer, the units must be converted using generally accepted factors. These figures are for FY22 and are used for the FY23 SDF calculation.

Table 2.9
Moore County's Wastewater Treatment Plant Capacity

Item	Calculation Item	Value	Units	Source/Calculation
A	WPCP's Permitted Capacity (MGD)	10.0	MGD	By Permit (Peak Month Avg. Day)
B	Planned Expansion	3.0	MGD	
C	Total	13.0	MGD	By Permit (Peak Month Avg. Day)
D	Peak month avg. day to annual avg. day ratio	1.4		Need to discuss design factor
E	Avg. daily flow capacity at WPCP (MGD)	9.3	MGD	C/D
F	MCPU Water Distribution Capacity	8.6		Calculated Below
G	MCPU Collection System Capacity (Peak Day)	12.0	MGD	E*1.4 for I&I
H	Portion Reserved for I&I	3.4	MGD	G-F
I	Collection System Capacity for Customers (Peak Day)	8.6	MGD	G-H
J	Treatment Peak Month avg. day to peak day ratio	1.2		System records
K	Treatment System Capacity (Peak Day)	15.6	MGD	C*J
L	Portion Reserved for I&I	6.2	MGD	40% I&I
M	Wastewater Treatment Capacity for Customers (Peak Day)	9.4	MGD	K-L

Table 2.10 provides for the supply/treatment capacity of the water system as of FY22. The MCPU has several intergovernmental agreements (IGA's) for water supply. These are added to the well capacity assuming an 18-hour run-time per day. The well capacity information was provided by MCPU. An agreement with the EMWD reserves 1.25 MGD of this supply[21]. These are the latest numbers for FY22 including 3.0 mgd for the Deep-River project.

[21] Resolution approving services contract and water purchase contract between the County of Moore and East Moore Water District.

Table 2.10
Moore County's Water System Supply/Treatment Capacity

Item	Calculation Item	Value	Units	Source/Calculation
A	Chatham County Peak Month Avg. Day	25,000	Gallons	Per IGA*
B	Peak day to annual avg. day ratio	1.4		Per Consultant
C	Chatham County Peak Day Calculated	35,000	Gallons	A*B
D	Well capacity	1,997	gpm	MCPU asset spreadsheet
E	Run Time	18	hours	Consultant Assumption
F	Wells (Peak Day)	2,156,760	Gallons	D*E*60
G	Harnett County (Peak Day)	3,000,000	Gallons	Per IGA
H	Aberdeen (Peak Day)	600,000	Gallons	Per IGA
I	Robbins (Peak Day)	25,000	Gallons	Per IGA
J	Chatham County (Peak Day)	35,000	Gallons	See A-B above
K	Southern Pines (Peak Day)	1,000,000	Gallons	Per IGA
L	Deep-water Supply	3,000,000	Gallons	State DNR Records
M	Total MCPU and EMWD Water Supply	9,816,760	Gallons	Sum of F-L
N	EMWD (Peak Day)	1,250,000	Gallons	Per IGA
O	Total MCPU (Peak Day)	8,566,760	Gallons	M-N

To calculate the effective capacity available for customers on the distribution side, fire protection volumes should be subtracted out and storage added in. **Table 2.11** assumes a goal of 180,000 gallons available for fire flows. This equates to a fire flow rate of about 1,500 gpm over a two-hour period. The Moore County Water & Wastewater Development Policy requires 1,500 gpm for buildings that are 10 feet or less from each other to maintain ISO ratings. Please note that the 180,000 gallons calculated and mentioned above should be viewed as a MCPU wide value for the purposes of calculating an average SDF. Actual modeling and field testing may show different volumes are available in different areas of the water distribution system. These figures are for FY22.

Table 2.11
Moore County's Water System Distribution Capacity

Item	Calculation Item	Value	Units	Source/Calculation
A	EMWD (Peak Day)	1,250,000	Gallons	Per IGA
B	Total MCPU (Peak Day)	8,566,760	Gallons	From Table 2.9
C	Fire Protection Capacity Needed	180,000	Gallons	See Text on previous page
D	Storage Capacity	2,100,000	Gallons	MCPU asset spreadsheet
E	Storage Capacity (Not Reserved for Fire Protection)	1,920,000	Gallons	D-C
F	EMWD Proration of Storage	244,480	Gallons	E*(A/(A+B)
G	MCPU Proration of Storage	1,675,520	Gallons	E*(B/(A+B)
H	Distribution Capacity EMWD	1,494,480	Gallons	A+F
I	Distribution Capacity MCPU	10,242,280	Gallons	B+G

The final step is to convert the system capacities into various EDU figures. **Table 2.12** summarizes the capacities of the water treatment/supply and distribution and wastewater collection and treatment. Please note that the wastewater treatment portion is not used as the wastewater treatment assets are outside of the MCPU.

Table 2.12
Moore County's Water System Distribution Capacity

Item	Calculation Item	Value	Units	Source/Calculation
A	Water EDU	351.9	Gallons	Table 2.8
B	Wastewater EDU	316.7	Gallons	Table 2.8
C	Water Purchase/Supply	8,566,760	Gallons	Table 2.10
D	Water Distribution	10,242,280	Gallons	Table 2.11
E	Wastewater Treatment	9.4	MGD	Table 2.9
F	Wastewater Collection	8.6	MGD	Table 2.9
G	**Water Purchase/Supply**	**24,344**	**EDU's**	**C/A**
H	**Water Distribution**	**29,106**	**EDU's**	**D/A**
I	**Wastewater Treatment**	**29,681**	**EDU's**	**E*1,000,000/B**
J	**Wastewater Collection (MCPU Only)**	**27,155**	**EDU's**	**F*1,000,000/B**

Rate Credit per EDU

The last step before SDF calculations are finalized is associated with determination of the credit for debt payments made from rate revenues. This is done since new customers will contribute through rate revenue to the retirement of debt cost included within the connection fee calculation.

To avoid double charging the customer for the same asset value, a credit is provided against the SDF to account for the anticipated payments made by a typical customer over the life of the debt. Connection fees anticipated for debt are subtracted from total anticipated debt paid by rate revenues. A net present value is then calculated using a 4% discount rate to determine the credit in today's dollars. **Tables 2.13 and 2.14** summarize the growth projections and the payments in terms of EDU's.

Table 2.13
Rate Credit Calculation for Wastewater System

Fiscal Year	Growth Rate	Billed Wastewater (1000 Gallons)	Wastewater Debt Payment	Debt Payments by Fees	Debt Payments through rate revenues	$ per 1000 Gallons	$ per EDU
2023		2,049,000	$1,294,305	$200,000	$1,094,305	$0.53	$47.56
2024	2.0%	2,089,980	$1,265,305	$200,000	$1,065,305	$0.51	$45.40
2025	2.0%	2,131,780	$1,245,805	$200,000	$1,045,805	$0.49	$43.69
2026	2.0%	2,174,416	$2,065,798	$200,000	$1,865,798	$0.86	$76.42
2027	2.0%	2,217,904	$2,044,548	$200,000	$1,844,548	$0.83	$74.07
2028	2.0%	2,262,262	$2,022,298	$200,000	$1,822,298	$0.81	$71.74
2029	2.0%	2,307,507	$1,994,048	$200,000	$1,794,048	$0.78	$69.24
2030	2.0%	2,353,657	$1,970,048	$200,000	$1,770,048	$0.75	$66.98
2031	2.0%	2,400,730	$1,955,048	$200,000	$1,755,048	$0.73	$65.11
2032	2.0%	2,448,745	$1,928,548	$200,000	$1,728,548	$0.71	$62.87
2033	2.0%	2,497,720	$1,905,548	$200,000	$1,705,548	$0.68	$60.81
2034	2.0%	2,547,674	$951,948	$200,000	$751,948	$0.30	$26.29
2035	2.0%	2,598,627	$899,948	$200,000	$699,948	$0.27	$23.99
2036	2.0%	2,650,600	$845,492	$200,000	$645,492	$0.24	$21.69
2037	2.0%	2,703,612	$845,492	$200,000	$645,492	$0.24	$21.26
2038	2.0%	2,757,684	$845,492	$200,000	$645,492	$0.23	$20.85
2039	2.0%	2,812,838	$845,492	$200,000	$645,492	$0.23	$20.44
2040	2.0%	2,869,095	$845,492	$200,000	$645,492	$0.22	$20.04
2041	2.0%	2,926,477	$845,492	$200,000	$645,492	$0.22	$19.64
2042	2.0%	2,985,007	$845,492	$200,000	$645,492	$0.22	$19.26
2043	2.0%	3,044,707	$845,492	$200,000	$645,492	$0.21	$18.88
2044	2.0%	3,105,601	$845,492	$200,000	$645,492	$0.21	$18.51
2045	2.0%	3,167,713	$845,492	$200,000	$645,492	$0.20	$18.15
2046	2.0%	3,231,067	$845,492	$200,000	$645,492	$0.20	$17.79
2047	2.0%	3,295,688	$845,492	$200,000	$645,492	$0.20	$17.44
2048	2.0%	3,361,602	$845,492	$200,000	$645,492	$0.19	$17.10
2049	2.0%	3,428,834	$845,492	$200,000	$645,492	$0.19	$16.77
2050	2.0%	3,497,411	$845,492	$200,000	$645,492	$0.18	$16.44
2051	2.0%	3,567,359	$845,492	$200,000	$645,492	$0.18	$16.11
2052	2.0%	3,638,706	$845,492	$200,000	$645,492	$0.18	$15.80
2053	2.0%	3,711,480	$845,492	$200,000	$645,492	$0.17	$15.49
2054	2.0%	3,785,710	$845,492	$200,000	$645,492	$0.17	$15.19
2055	2.0%	3,861,424	$845,492	$200,000	$645,492	$0.17	$14.89
			$35,893,429	$6,200,000	$29,693,429		$1,096
						Discount Rate	**4.0%**
						Credit for Wastewater NPV (Part 2 Step A of FCCF Calc)	**$721**

Table 2.14
Rate Credit Calculation for Water System

Fiscal Year	Growth Rate	Billed Water (1000 Gallons)	Water Debt Payment	Debt Payments by Fees	Debt Payments through rate revenues	$ per 1000 Gallons	$ per EDU
2023		1,200,000	$1,240,680	$260,000	$980,680	$0.82	$72.78
2024	2.0%	1,224,000	$1,192,156	$260,000	$932,156	$0.76	$67.83
2025	2.0%	1,248,480	$1,194,226	$260,000	$934,226	$0.75	$66.64
2026	2.0%	1,273,450	$1,654,794	$260,000	$1,394,794	$1.10	$97.55
2027	2.0%	1,298,919	$1,658,101	$260,000	$1,398,101	$1.08	$95.86
2028	2.0%	1,324,897	$1,653,641	$260,000	$1,393,641	$1.05	$93.68
2029	2.0%	1,351,395	$1,651,838	$260,000	$1,391,838	$1.03	$91.73
2030	2.0%	1,378,423	$1,657,528	$260,000	$1,397,528	$1.01	$90.29
2031	2.0%	1,405,991	$1,578,438	$260,000	$1,318,438	$0.94	$83.51
2032	2.0%	1,434,111	$963,815	$260,000	$703,815	$0.49	$43.71
2033	2.0%	1,462,793	$966,835	$260,000	$706,835	$0.48	$43.03
2034	2.0%	1,492,049	$964,615	$260,000	$704,615	$0.47	$42.06
2035	2.0%	1,521,890	$961,815	$260,000	$701,815	$0.46	$41.07
2036	2.0%	1,552,328	$969,028	$260,000	$709,028	$0.46	$40.68
2037	2.0%	1,583,375	960,465	$260,000	700,465	0.44	39.40
2038	2.0%	1,615,043	956,265	$260,000	696,265	0.43	38.39
2039	2.0%	1,647,344	956,665	$260,000	696,665	0.42	37.66
2040	2.0%	1,680,291	956,465	$260,000	696,465	0.41	36.91
2041	2.0%	1,713,897	950,665	$260,000	690,665	0.40	35.89
2042	2.0%	1,748,175	949,465	$260,000	689,465	0.39	35.12
2043	2.0%	1,783,139	862,665	$260,000	602,665	0.34	30.10
2044	2.0%	1,818,802	853,665	$260,000	593,665	0.33	29.07
2045	2.0%	1,855,178	849,465	$260,000	589,465	0.32	28.30
2046	2.0%	1,892,282	834,865	$260,000	574,865	0.30	27.06
2047	2.0%	1,930,128	455,265	$260,000	195,265	0.10	9.01
2048	2.0%	1,968,731	455,265	$260,000	195,265	0.10	8.83
2049	2.0%	2,008,106	455,265	$260,000	195,265	0.10	8.66
2050	2.0%	2,048,268	455,265	$260,000	195,265	0.10	8.49
2051	2.0%	2,089,233	455,265	$260,000	195,265	0.09	8.32
2052	2.0%	2,131,018	455,265	$260,000	195,265	0.09	8.16
2053	2.0%	2,173,638	455,265	$260,000	195,265	0.09	8.00
2054	2.0%	2,217,111	455,265	$260,000	195,265	0.09	7.84
2055	2.0%	2,261,453	455,265	$260,000	195,265	0.09	7.69
			$29,102,709	$8,060,000	$21,042,709		$1,384
						Discount Rate	**4.0%**
					Credit for Water NPV (Part 2 Step A of FCCF Calc)		**$940**

We can now calculate the SDF. These calculations are provided in **Table 2.15** and **Table 2.16** for the water and wastewater systems, respectively. In each table, Part 1 provides the calculations of total system values and those costs per EDU's. Part 2 provides the credit applied based on new development's contribution of rate revenue applied to debt. Part 3 provides the fair share cost of new developments per EDU.

Table 2.15
Water System SDF Calculations

PART 1: Calculate Facilities Cost Per EDU

Step A Calculate Distribution Facilities Component

Distribution Facilities	Cost (in FY23$)	Comments
Existing Facilities: Water Mains, Pumps, Storage	$21,476,270	
Projects-in-Progress or Planned	1,100,000	5%
SUBTOTAL	**$22,576,270**	
TOTAL	$22,576,270	
CAPACITY (in EDUs)	29,106	
RESULTS ($'s/EDU)	**$775**	Rounded down to nearest $

Step B Calculate Treatment System Facilities Component

Treatment Facilities	Cost (in FY23$)	Comments
Water Purchase/Wells	$6,831,971	
Projects-in-Progress or Planned	30,757,834	82%
SUBTOTAL	**$37,589,805**	
TOTAL	$37,589,805	
CAPACITY (in EDUs)	24,344	
RESULTS ($'s/EDU)	**$1,544**	Rounded down to nearest $

Step C Calculate Debt Costs & Interest Component

Debt Costs & Interest	Cost (in FY23$)	Comments
Total Debt Cost (Not including Principal)	$5,661,275	
CAPACITY (in EDUs)	29,106	Uses higher of component capacity
RESULTS ($'s/EDU)	**$194**	Rounded down to nearest $

Step D Calculate Total Facilities Cost per EDU

All Components	Cost (in FY23$)	Comments
Distribution Component	$775	
Treatment System Component	1,544	
Debt Costs & Interest Component	194	
RESULTS ($'s/EDU)	**$2,513**	

Total Water System Value	Cost (in FY23$)	Comments
Distribution	$22,576,270	
Water Purchase/Wells	37,589,805	
Financing Cost	5,661,275	
TOTAL	**$65,827,350**	

PART 2: Calculate Rate Credit Per EDU

Step A Calculate Per EDU Share of Annual Water System Debt

Net Present Value Per EDU of Annual Debt = Credit Value

Annual Debt Payments of Water System for Existing and Anticipated Debt	Cost (in FY22$)	Comments
RESULTS ($'s/EDU)	-$940	Calculated exceeds 25% as required by law

PART 3: Calculate Full Proportionate Share Water Connection Fee Per EDU

Step A Subtract Rate Credit Per EDU from Total Facilities Cost Per EDU

	Cost (in FY23$)	Comments
Facilities Cost Per EDU	$2,513	
Rate Credit	-940	-37.4%
RESULTS ($'s/EDU)	**$1,573**	

Table 2.16
Wastewater System SDF Calculations

PART 1: Calculate Facilities Cost Per EDU

Step A Calculate Collection Facilities Component

Collection Facilities	Cost (in FY23$)	Comments
Existing Facilities: Gravity Sewers, Force Mains, Lift Stations	$8,609,699	
Projects-in-Progress or Planned	471,715	5%
SUBTOTAL	**$9,081,414**	
TOTAL	$9,081,414	
CAPACITY (in EDUs)	27,155	
RESULTS ($'s/EDU)	**$334**	Rounded down to nearest $

Step B Calculate Treatment System Facilities Component

Treatment Facilities	Cost (in FY23$)	Comments
Treatment Plant	$29,925,620	
Projects-in-Progress or Planned	49,317,000	62%
SUBTOTAL	**$79,242,620**	
TOTAL	$79,242,620	
CAPACITY (in EDUs)	29,681	
RESULTS ($'s/EDU)	**$2,669**	Rounded down to nearest $

Step C Calculate Debt Costs & Interest Component

Debt Costs & Interest	Cost (in FY23$)	Comments
Total Debt Cost (Not including Principal)	$6,423,125	
CAPACITY (in EDUs)	29,681	Uses higher of component capacity
RESULTS ($'s/EDU)	**$216**	Rounded down to nearest $

Step D Calculate Total Facilities Cost per EDU

All Components	Cost (in FY23$)	Comments
Collection Component	$334	
Treatment System Component	2,669	
Debt Costs & Interest Component	216	
RESULTS ($'s/EDU)	**$3,219**	

Total Wastewater System Value	Cost (in FY23$)	Comments
Collection	$9,081,414	
Treatment	79,242,620	
Financing Cost	6,423,125	
TOTAL	**$94,747,159**	

PART 2: Calculate Rate Credit Per EDU

Step A Calculate Per EDU Share of Annual Wastewater System Debt

Net Present Value Per EDU of Annual Debt = Credit Value

Annual Debt Payments of Wastewater System for Existing and Anticipated Debt	Cost (in FY23$)	Comments
RESULTS ($'s/EDU)	-$805	Rate credit is adjusted to 25% of SDF per NC Law

PART 3: Calculate Full Proportionate Share Wastewater Connection Fee Per EDU

Step A Subtract Rate Credit Per EDU from Total Facilities Cost Per EDU

	Cost (in FY23$)		Comments
Facilities Cost Per EDU	$3,219		
Rate Credit	-805	-25.0%	
RESULTS ($'s/EDU)	**$2,414**		

The EDU is based on a typical residential demand using a $^{5}/_{8}$-inch or $^{3}/_{4}$-inch meter for water service. Larger meters will be charged a multiple based on the expected increase in provided capacities over the 5/8" meter[22]. Capacities are based on the AWWA meter equivalency ratios. **Table 2.17** provide the Water System SDF by meter size. The SDF will be added to any applicable tapping and administrative fees.

Table 2.17
Water EDU and SDF by Meter Size

Meter Size (in inches)	Peak Day Volume (no I&I)	EDU's	SDF
3/4	352	1	$2,414
1	880	2	$4,828
2	2,815	8	$15,450
3	5,630	16	$30,900
4	8,797	25	$48,280
6	17,593	50	$96,560
8	28,149	80	$154,496

This report includes the cost of the Deep-River supply project. This project is estimated to be $27 million dollars and would supply 2.0 mgd of water capacity initially. For purposes of the SDFA, 3.0 mgd was assumed until final numbers are available.

For wastewater service, the EDU is based on 317 Gallons per day. **Table 2.18** provides that calculation up to 5 EDU's. Larger requests are determined by taking the daily capacity needed and dividing by 317 gallons. This results in an EDU value that is then multiplied by $2,312.

[22] The 5/8" meter represents the equivalent residential demand (EDU). Though many homes now use ¾" meters, their demand did not increase, as such it is still treated as a single EDU and larger meter EDU's are based on the 5/8" capacity ratio. The ratio was confirmed by an analysis of existing billed volumes.

Table 2.18
Wastewater SDF by EDU's

EDU's	Results	Peak Day Volume (no I&I)
1.0	$2,414	317
2.0	$4,828	633
3.0	$7,242	950
4.0	$9,656	1,267
5.0	$12,070	1,583

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Section 3

Findings & Recommendations

Section 3 - Findings/Recommendations

Findings

This report presents an analysis of the system development fee for the Moore County Public Works. The findings and recommendations are summarized in this section.

In general, the MCPW has capacity to sell to new developments for water and wastewater services. The "Buy-in" approach was selected to numerate the value of the existing system in terms of an equivalent dwelling unit (EDU). Additionally, the incremental cost approach was utilized to capture the future cost of replacement and expansion projects over the next 10 years. ***Assets with less than 10 years of useful life were excluded from these valuations. Additionally, replacement cost value of existing assets being replaced are excluded in the value.***

The East Moore Water District (EMWD) assets and debts were also analyzed during this project. However, due to the high debt load and resulting rate credit, an SDF for water system is not warranted. Though a separate EMWD SDF was not possible to pay for EMWD assets, the MCPU SDF for water treatment/supply and wastewater treatment and collection would be possible. Additionally, other wastewater districts that utilize the Moore County Water Pollution Control Plant (WPCP) may collect the SDF for wastewater treatment on behalf of Moore County. This would require an intergovernmental agreement that requires these districts to provide sufficient information to satisfy DFA tracking requirements.

The revenue credit for water facilities is calculated at $940 of the $2,513 facility cost per EDU resulting in a maximum fee of $1,573. The revenue credit for wastewater facilities is set at 25% or $805 of the $3,219 facility cost per EDU resulting in a maximum fee of $2,414. The wastewater credit provided here is higher than the calculated credit provided in the previous section. The credit may never go below 25% per DFA[23].

[23] (b) Revenue Credit. – In applying the incremental cost or marginal cost, or the combined cost, method to calculate a system development fee with respect to water or sewer capital improvements, the system development fee analysis must include as part of that methodology a credit against the projected aggregate cost of water or sewer capital improvements. That credit shall be determined based upon generally accepted calculations and shall reflect a deduction of either the outstanding debt principal or the present value of projected water and sewer revenues received by the local governmental unit for the capital improvements necessitated by and attributable to such new development, anticipated over the course of the planning horizon. **In no case shall the credit be less than twenty-five percent (25%) of the aggregate cost of capital improvements.**

Tables 3.1 and 3.2 summarize the maximum SDF recommended for FY23. An equivalency table for wastewater by water meter size is provided in **Table 3.3**.

Table 3.1
Water System SDF by Meter Size

Meter Size (in inches)	Peak Day Volume (no I&I)	EDU's	SDF
3/4	352	1	$1,573
1	880	2	$3,933
2	2,815	8	$12,584
3	5,630	16	$25,168
4	8,797	25	$39,325
6	17,593	50	$78,650
8	28,149	80	$125,840

Table 3.2
Wastewater SDF by EDU's

EDU's	Results	Peak Day Volume (no I&I)
1.0	$2,414	317
2.0	$4,828	633
3.0	$7,242	950
4.0	$9,656	1,267
5.0	$12,070	1,583

Table 3.3
Wastewater SDF by Meter Size

Meter Size (in inches)	Peak Day Volume (no I&I)	EDU's	SDF
3/4	317	1.0	$2,414
1	633	2.0	$4,828
2	2,027	6.4	$15,450
3	4,053	12.8	$30,900
4	6,333	20.0	$48,280
6	12,667	40.0	$96,560
8	20,267	64.0	$154,496

The fixed asset listing provided sufficient level of detail for the analysis presented in this report. However, additional details would allow for both a higher level of analysis and potential future replacement costs. Many asset descriptions were based on information provided from the purchase from other entities. In some cases, fixed assets were consolidated under a single heading/description.

For wastewater there is an assumed outdoor water usage based on meter size. Larger meters are assumed to use more water outside for landscaping purposes than a typical dwelling unit. This schedule should cover most new development. In situations where a facility has a high-water demand but low wastewater (greenhouses, plant retailers, industries that use water as part of their product) the wastewater SDF shall be determined by actual daily demand requested. Such requests shall be approved by Moore County and resulting sewer tap shall be sized as appropriate.

The East Moore Water District will not have a water SDF to recoup their distribution assets. An analysis of debt using the North Carolina DFA legislation would nullify the value of the water distribution system. However, East Moore Water District utilizes assets owned by MCPU and WPCP. The associated fees can be charged to new connections for these entities to recover their cost. However, since the rate credit is doubled, the Water SDF calculates to $633 per EDU and the Wastewater SDF calculates to $1,609.

Tap Fee costs are excluded from the SDF and are provided separately on the official Moore County fee schedule. A tap fee recovers the cost of physically connecting a property to the distribution or collection systems. For water system, this would be the service line connecting the water main to a water meter. Moore County allows developers to provide the materials and labor to perform the water tap except for the meter. In this situation and only if the water tap conforms to Moore County specifications and there is no additional work needed for the tap by Moore County, the Developer will only need to pay for the meter set fee portion of the tap. The developer would pay for the water SDF, the admin fee and the meter set fee. For connection to the sewer main, the developer may provide the materials and labor for the tap and only pay the wastewater SDF and admin fee.

Capacity for water and sewer systems is only committed when an SDF is paid for either at platting for new subdivision after July 1, 2018, or at time of application for connection for other developments[24].

North Carolina law provides procedures/requirements for calculating the maximum SDF. The law also requires that the SDF does not unduly burden new development. The FY19 SDF had been adjusted to be in similar magnitude to the existing fee Moore County charges new connections. This would allow new customers the opportunity to see the new fee structure.

Recommendations

The following are recommendations for MCPU's consideration:

1. Provide a 45-day review period of this SDFA with provision to take written comments either via email or United States Postal Service delivery;
2. Adjust the FY22 SDFA based on comments received;
3. Implement fee for FY23 – FY26 based on Annual Budget preparation not to exceed **Tables 3.1, 3.2 and 3.3 of the amended (if needed) report.**
4. Perform full update of the SDFA every five years as required by legislation or earlier if significant changes in consumption or infrastructure occur. Especially as it relates to the cost and capacity of the wastewater expansion and the Deep-River water treatment plant

[24] **§ 162A-213. Time for collection of system development fees.**
(a) Land Subdivision. – For new development involving the subdivision of land, the system development fee shall be collected by a local governmental unit either at the later of either of the following:
a. The time of plat recordation.
b. When water or sewer service is committed by the local governmental unit.
(b) Other New Development. – For all other new development, the local governmental unit shall collect the system development fee at the earlier of either of the following:
a. The time of application for connection of the individual unit of development to the service or facilities.
b. When water or sewer service is committed by the local governmental unit."

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Appendix

Appendix A

Assets with less than 10 years of useful life were excluded from the SDF calculation.

Acq Date	Asset #	Description	Acq Cost	Acq Year	Net Book Value	Inflation Factor	Book Life	Depreciated Replacement Value
6/13/2011	0009100	WPCP UPGRADE PLANT	25,174,821	2011	16,239,414	1.184	20	19,220,840
6/30/2005	0008695	EMWD PHASE II 338100.0020 CIP PROJECT	10,942,122	2005	4,909,575	1.363	20	6,692,809
6/30/2014	0009393	WATER SOURCES PROJECT	7,601,355	2014	5,875,079	1.125	20	6,607,181
6/13/2011	0009183	PH WATER TANK PROJECT LOB CAPITAL/LK PHU	7,041,740	2011	5,686,299	1.184	26	6,730,259
7/1/1999	0007758-03	PINEHURST WATER SYSTEM	5,815,818	1999	1,638,239	1.598	35	2,617,996
9/17/2013		Water Supply Harnett County Purchased Capacity	5,450,000	2013	5,232,000	1.143	100	5,979,416
9/30/2005	0008718	PHASE I CONTRACT III 338000.0065	3,540,821	2005	1,377,837	1.363	20	1,878,289
1/1/1978	1000075	SEWER LINES #1	3,335,322	1978	433,592	4.083	50	1,770,518
4/1/2003	0008533	EAST MOORE WATER DIST PHASE I WATER	3,112,217	2003	1,679,686	1.447	40	2,430,396
6/13/2011	0009148	PH LAKE LIFE STATION ARRA PROJECT	2,792,803	2011	2,094,603	1.184	20	2,479,155
9/30/2007	0008918	US 15/501 WATER MAIN 328000.0280	2,395,311	2007	1,077,890	1.284	20	1,384,057
6/25/2012	0009252	VASS WASTEWATER IMPROVEMENTS	2,302,091	2012	1,504,670	1.160	20	1,744,808

Acq Date	Asset #	Description	Acq Cost	Acq Year	Net Book Value	Inflation Factor	Book Life	Depreciated Replacement Value
6/30/2019	0009787	PINEHURST #7 INTERCEPTOR	2,184,271	2019	2,038,653	1.041	20	2,123,012
6/30/2005	0008691	INFLUENT PUMP STATION UPGRADE	2,149,487	2005	487,197	1.363	20	664,155
1/1/1978	1000076	SEWER LINES #2	2,139,480	1978	278,132	4.083	50	1,135,719
1/1/1978	1000076	SEWER LINES #2	2,139,480	1978	278,132	4.083	50	1,135,719
9/30/2006	0008804	SOUTHERN PINES #4 PUMP REPLACEMENT	1,397,492	2006	628,872	1.321	20	830,497
6/30/2009	0009054	PINEHURST ELEVATED STOR TANK 328000.8095	1,300,945	2009	593,431	1.241	20	736,436
6/30/2019	0009788	EMWD Phase IV	1,235,071	2019	1,235,071	1.041	20	1,286,178
6/25/2012	0009253	LIFT STATION 3-4 REPLACEMENT	1,136,617	2012	852,463	1.160	20	988,511
6/30/2013	0009332	WPCP INTERCEPTOR SEWER REHAB	1,100,010	2013	820,424	1.143	20	937,625
7/1/1999	0007764-13	VASS SEWER SYSTEM	991,878	1999	353,083	1.598	35	564,246
6/30/2005	0008694	PINEWILD BYPASS 328000.0290 CIP PROJEC	922,460	2005	394,436	1.363	20	537,701
6/30/2003	0008535	WEST END/HWY 705 ROBBINS	860,000	2003	79,385	1.447	20	114,864
6/30/2002	0008497	CANNON PARK WATER TOWER PROJECT	848,974	2002	42,449	1.480	20	62,820
7/1/1979	1000079	SOUTHERN PINES INTERCEPTOR	796,445	1979	127,431	3.667	50	467,311
3/6/2018	0009687-CON	ALMA ST-CAMELLIA CROSSING DEV. EQUP.	693,415	2018	577,846	1.060	20	612,661
6/30/2015	0009467	3-3, 3-1 LS REPLACEMENT	680,771	2015	538,944	1.123	20	605,384
6/25/2012	0009251	MIDLAND RD WATERLINE UPGRADE	674,902	2012	380,690	1.160	20	441,446

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Acq Date	Asset #	Description	Acq Cost	Acq Year	Net Book Value	Inflation Factor	Book Life	Depreciated Replacement Value
6/30/2007	0008885	LS 9-1 PH HOSPITAL 420 LONGLEAF DR EAST	649,000	2007	194,700	1.284	20	250,003
12/4/2014	0009474	MCLEAN TANK RENOVATIONS	540,876	2014	362,838	1.125	20	408,051
6/30/2003	0008534	MONROETOWN UTIL SYSTEM SPRING LAKE ROAD	500,522	2003	49,101	1.447	20	71,046
1/1/1978	1000077	SEWER LINES #3	487,560	1978	63,383	4.083	50	258,816
4/5/2021	0010009	LIFTSATINO 10-3	480,907	2021	478,502	1.000	50	478,502
11/1/2013	0009389	MCLEAN ROAD TANK 1 RENOVATION	459,895	2013	283,602	1.143	20	324,116
3/1/2006	0008732	INTERCONNECT - 7 LAKES 328000.0260	440,843	2006	191,303	1.321	20	252,638
12/31/2005	0008716	L.S. 14-1 UPGRADE 328000.0330	427,633	2005	105,524	1.363	20	143,853
1/1/1978	1000078	SEWER LINES #4	412,781	1978	53,661	4.083	50	219,120
9/30/2006	0008805	OLD TOWN PINEHURST SEWER REHAB	404,901	2006	130,814	1.321	20	172,755
7/1/1999	0007757-42	WESTSIDE OPERATIONAL EQUIPMENT	395,643	1999	74,042	1.598	30	118,323
6/30/2018	0009708	VASS PHASE II SEWER SYSTEM IMP	393,879	2018	393,879	1.060	20	417,610
6/30/2006	0008762	LIME SYSTEM 318000.0600	357,856	2006	161,035	1.321	20	212,666
6/30/2006	0008766	LAKE PINEHURST REHAB 3280008065	352,562	2006	153,073	1.321	20	202,151
2/3/2015	0009695-CON	HERONSBROOK - DEVELOPER EQUIP.	347,450	2015	235,976	1.123	20	265,067
7/1/1999	0007757-40	NORTHSIDE OPERATIONAL EQUIP	322,207	1999	52,977	1.598	30	84,660

Appendix

Acq Date	Asset #	Description	Acq Cost	Acq Year	Net Book Value	Inflation Factor	Book Life	Depreciated Replacement Value
9/15/2015	0009688-CON	JUNIPER RIDGE PHASE 1 DEV. EQUIP.	319,100	2015	226,029	1.123	20	253,893
6/30/2005	0008692	INTERCEPTOR LINES & MANHOLES	318,798	2005	83,590	1.363	20	113,952
6/15/2021	0009998CON	DOD CAMELLIA CROSSING PHASE 3	307,000	2021	306,488	1.000	50	306,488
4/30/2007	0008880	LAKE PINEHURST EMERGENCY REPAIR	251,560	2007	73,372	1.284	20	94,212
4/30/2019	0009782	SEABOARD STREE WATER MAIN	243,563	2019	216,162	1.041	20	225,107
11/13/2019	0009843CON	DOD DORMIE CLUB - WEST END	242,109	2019	221,933	1.041	20	231,117
6/30/2007	0008882	PH LAKE LIFT STATION REPLACEMENT 328000	229,000	2007	103,050	1.284	20	132,320
6/14/2011	0009191	WELL 3A	225,746	2011	134,324	1.184	20	158,985
6/30/2010	0009110	VASS SEWR PROJECT 328000.8126	204,368	2010	91,875	1.221	20	112,175
3/31/2007	0008835	Scada Telemetry System 328000	201,049	2007	89,021	1.284	20	114,307
3/29/2021	0010025	HYLAND HILLS COLUMBINE RD PROJECT	188,756	2021	187,497	1.000	50	187,497
3/31/2008	0008959	CONSTRUCT WELL 9 AND 5A 328000.0755	186,775	2008	84,049	1.237	20	103,932
6/14/2011	0009188	WATER MAIN EXTENSION	180,221	2011	89,360	1.184	20	105,765
12/3/2019	0009845CON	DOD ALMA STREET PHASE 2 (CAMILIA)	175,000	2019	161,146	1.041	20	167,814
4/4/2017	0009683-CON	WIGGS FARM - CURRIE MILL DEVELOPER EQUIP	167,250	2017	131,709	1.086	20	143,055
3/29/2018	0009675	FLUME UPGARDE	163,636	2018	136,364	1.060	20	144,580

Acq Date	Asset #	Description	Acq Cost	Acq Year	Net Book Value	Inflation Factor	Book Life	Depreciated Replacement Value
8/8/2019	0009848CON	DOD FOX GROVE PHASE II	163,338	2019	147,685	1.041	20	153,796
9/24/2019	0009805CON	DOD LAUREL RIDGE PHASE 1 - BLUE FARM	161,042	2019	146,280	1.041	20	152,333
1/3/2017	0009696-CON	SINCLAIR DEVELOPER EQUIP.	155,450	2017	120,474	1.086	20	130,852
5/19/2020	0009879CON	DOD DORMIE CLUB PHASE 2	154,704	2020	145,680	1.029	20	149,859
8/29/2018	0009709	BAR RAKE	149,900	2018	128,040	1.060	20	135,754
7/1/1999	0007757-41	SOUTHSIDE OPERATIONAL EQUIP	149,688	1999	24,612	1.598	30	39,331
6/5/2018	0009691-CON	FOX GROVE	132,637	2018	112,189	1.060	20	118,948
4/21/2020	0009863CON	GRETCHIN PINES INFASTRUCTURE DOD	132,100	2020	123,844	1.029	20	127,397
6/16/2017	0009588	BAR RAKE #1	131,000	2017	104,254	1.086	20	113,235
2/18/2021	0009958CON	MAGNOLIA ON KNOLL DOD	125,000	2021	123,958	1.000	50	123,958
3/3/2020	0009876CON	SINCLAIR PHASE 5 DOD - INFASTRUCTURE	120,459	2020	112,428	1.029	20	115,654
9/1/2020	0009915CON	GRETCHEN PINES ESTATES II DOD	120,000	2020	118,000	1.029	50	121,385
2/18/2020	0009849CON	DOD ROYAL OAKS OF PINEHURST (TIARA PROP)	120,000	2020	111,500	1.029	20	114,699
9/30/2008	0009028	SIX INCH WATER MAIN, MCKINON RD 328000	112,875	2008	40,917	1.237	20	50,597
6/30/2008	0008988	SLUDGE SYSTEM TRANSITION 31800	106,144	2008	60,872	1.237	20	75,272
3/31/2004	0008585	MONITORING STATION #10 3180000405	105,079	2004	14,448	1.409	20	20,363

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Acq Date	Asset #	Description	Acq Cost	Acq Year	Net Book Value	Inflation Factor	Book Life	Depreciated Replacement Value
11/12/2019	0009844CON	DOD DAVITA DIALYSIS - TOTAL RENAL CARE	105,000	2019	96,250	1.041	20	100,233
5/4/2021	0009991CON	DOD GRETCHEN PINES PHASE 2	102,000	2021	101,660	1.000	50	101,660
6/19/2018	0009690-CON	JUNIPER RIDGE PHASE 3 DEV. EQUIP	101,415	2018	85,780	1.060	20	90,948
4/16/2019	0009755CON	BROOKWOOD STAR RIDGE DOD	100,000	2019	88,750	1.041	20	92,422
12/20/2017	0009632	PINEHURST MAINT. YARD METAL BUILDING PAR	96,571	2017	79,934	1.086	20	86,820
1/5/2021	0009959CON	FOX GROVE PHASE 3 DOD	96,000	2021	95,040	1.000	50	95,040
6/30/2014	0009388	LINDEN RD WELLS	94,500	2014	61,031	1.125	20	68,636
10/6/2020	0009923CON	DOD TOWN OF HOFFMAN	91,450	2020	90,078	1.029	50	92,662
1/9/2018	0009686-CON	GREENS AT THE ARBORETUM DEVELOP EQUIP	85,500	2018	70,538	1.060	20	74,787
7/1/1999	0007764-01	Hyland Hills Water Sys	81,000	1999	1,277	1.598	20	2,041
6/30/2014	0009392	EDGEWOOD TERRACE PROJECT	78,500	2014	50,698	1.125	20	57,015
12/6/2018	0009726CON	WINSTON PINES SUBDIVISION WATERLINE	76,542	2018	66,655	1.060	20	70,671
10/4/2016	0009684-CON	SANDHILLS ALLIANCE CHURCH DEVELOPER EQUI	74,900	2016	57,111	1.109	20	63,352
5/1/2010	0009104	HWY 211 WATER MAIN	74,151	2010	32,750	1.221	20	39,986
7/1/1999	0007764-02	VASS WATER SYSTEM(1993)	74,136	1999	21,132	1.598	35	33,770
6/30/2002	0008498	WELL#22 PINEHURST, NC ADDED 45384.23	72,890	2002	3,644	1.480	20	5,394

Acq Date	Asset #	Description	Acq Cost	Acq Year	Net Book Value	Inflation Factor	Book Life	Depreciated Replacement Value
6/19/2019	0009789	VIRGINIA ROAD WATER MAIN	72,570	2019	65,011	1.041	20	67,701
9/6/2016	0009694-CON	MEADOWS AT FARM LIFE DEV. EQUIP.	67,525	2016	51,206	1.109	20	56,802
11/26/2012	0009336	GRAVITY SEWER @MR2 PUMP STATION	63,781	2012	36,143	1.160	20	41,911
10/16/2018	0009723CON	LOT 133 CLARENDON GARDENS	63,750	2018	63,750	1.060	999	67,591
4/17/2019	0009783	TRADE STREET WATER MAIN	62,240	2019	55,238	1.041	20	57,524
6/15/2021	0009999CON	DOD LAUREL RIDGE PHASE 2	60,000	2021	59,900	1.000	50	59,900
6/4/2019	0009777CON	JORDANS RIDGE DEVELOPER INFASTRUCTUR	58,720	2019	52,603	1.041	20	54,780
6/30/2007	0008881	PINEHURST WELL 5A 3280000755	58,403	2007	17,521	1.284	20	22,498
11/1/2017	0009680	NIAGARA CARTHAGE WATER MAIN IMP	57,550	2017	46,999	1.086	20	51,048
2/15/2017	0009689-CON	JUNIPER RIDGE PHASE 2 DEV. EQUIP.	55,520	2017	43,259	1.086	20	46,986
6/14/2011	0009189	OLD TOWN DIST HYDRANT UPGRADE	54,783	2011	27,163	1.184	20	32,150
7/1/1999	0007764-07	Vass Water Plant Rehabilitatio	53,685	1999	23,584	1.598	35	37,689
7/1/1999	0007758-05	Sugar Gum Road Force Main	51,830	1999	18,235	1.598	35	29,141
9/4/2018	0009724CON	PINEHURST BREWERY WATERLINE	50,150	2018	43,045	1.060	20	45,639
4/15/2007	0008878	ROOF REPLACEMENT 3141000040	49,338	2007	14,185	1.284	20	18,214

Acq Date	Asset #	Description	Acq Cost	Acq Year	Net Book Value	Inflation Factor	Book Life	Depreciated Replacement Value
6/14/2011	0009190	GROUND WATER MONITORING WELL	49,000	2011	24,296	1.184	20	28,756
6/30/2005	0008693	INTERCONECT PHURST & EMWD	49,000	2005	10,453	1.363	20	14,250
12/17/2019	0009906-1	815 ST ANDREWS DRIVE EASEMENT	48,464	2019	48,464	1.041	999	50,469
10/2/2018	0009725CON	PINEHURST SENIOR APARTMENTS WATERLINE	45,600	2018	39,330	1.060	20	41,700
6/30/2007	0008884	Water source study	43,404	2007	23,872	1.284	20	30,653
3/8/2017	0009596	MONITORING STATION FOR TAYLORTOWN	41,686	2017	32,654	1.086	20	35,467
6/30/2017	0009611	STORAGE BARN	41,428	2017	32,970	1.086	20	35,810
4/15/2004	0008610	MECKLENBURG UTILITIES PHASE I CONTRA	39,132	2004	5,398	1.409	20	7,607
12/31/2006	0008814	SLUDGE SYSTEM TRANSITION PROJE	38,707	2006	18,386	1.321	20	24,281
4/16/2019	0009754CON	LONGLEAF PINES STORAGE DOD	37,279	2019	33,085	1.041	20	34,454
6/16/2017	0009589	MAINTENANCE YARD FENCE IN PINEHURST	37,104	2017	21,953	1.086	10	23,845
12/10/2012	0009337	NEW METER BASE WELL #13	36,753	2012	20,980	1.160	20	24,328
6/4/2019	0009778CON	HARNESS TRACK SEWER EXTENSION	35,350	2019	31,668	1.041	20	32,978
9/30/2014	0009475	Pump 10-3 TreeHouse LS	35,134	2014	31,913	1.125	20	35,890
6/19/2018	0009693-CON	CAMERON AVENUE	35,000	2018	29,604	1.060	20	31,388
10/8/2019	0009905	3 INVERRARY RD EASEMENT	32,395	2019	32,395	1.041	999	33,735

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7/1/1999	0007758-06	BOOSTER STA MIDLAND RD	31,272	1999	9,179	1.598	35	14,669
6/14/2011	0009187	BAR SCREEN #2 REHAB WPCP	31,179	2011	21,695	1.184	20	25,678
9/30/2005	0008712	RAW SEWAGE PUMP STATION DESIGN	30,800	2005	6,545	1.363	20	8,922
9/1/2020	0009914CON	LA FORET DEED OF DECIATION	30,000	2020	29,500	1.029	50	30,346
7/21/2020	0009912CON	BROOKWOOD PH1B DOD	30,000	2020	29,400	1.029	50	30,243
6/30/2009	0009055	LAND EASEMENT SETTLEMENT AGREEMENT	29,500	2009	29,500	1.241	999	36,609
11/13/2019	0009907-1	1724 NC 73 HWY EASEMENT	29,396	2019	29,396	1.041	999	30,612
8/1/2006	0008803	WWTP UPGRADE MAIN PLANT 318000.0590	28,500	2006	7,244	1.321	20	9,566
7/1/1999	0007758-08	SEWER-CENTENNIAL GOLF COURSE	27,000	1999	8,602	1.598	35	13,746
9/30/2004	0008626	OFFICE RENOVATIONS SANDHILLS BLDG SYS	26,546	2004	4,314	1.409	20	6,080
8/16/2016	0009711-CON	MEDLIN RD DEVELOPER EQUIPMENT	25,500	2016	19,231	1.109	20	21,333
11/6/2018	0009722CON	GOLF PRIDE-CENTENNIAL BLVD	25,000	2018	21,667	1.060	20	22,972
9/16/2019	0009904	10 BECKETT RIDGE EASEMEN	24,395	2019	24,395	1.041	999	25,404
6/30/2007	0008887	PH#2 Sewer rapair main golf co	23,487	2007	11,744	1.284	20	15,079
4/15/2004	0008608	SEPTIC HAULER TRUCK UNLOADING	23,138	2004	7,447	1.409	20	10,496
2/15/2017	0009682-CON	SPUR RD WATER DISTRIBUTION SYSTEM	22,200	2017	17,298	1.086	20	18,788

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6/1/2006	0008767	RING LAND .34 ACRE LOT WATER TANK	21,998	2006	21,998	1.321	999	29,051
7/16/2019	0009857CON	PINEHURST TEMP SCHOOL DOD	21,500	2019	19,350	1.041	20	20,151
12/31/2006	0008817	Pump Replacement #10-3 324200	19,446	2006	10,209	1.321	20	13,483
12/31/2006	0008815	PINEHURST TEST WELL8 FOR WELL5A	18,418	2006	5,065	1.321	20	6,689
11/5/2019	0009847CON	DOD BEACH CLUB PINEHURST	18,379	2019	16,847	1.041	20	17,545
7/1/1999	0007757-10	Westside Tanksite	18,000	1999	18,000	1.598	999	28,765
3/1/2010	0009109	WELL#9	17,950	2010	7,778	1.221	20	9,497
6/22/2012	0009279	WELL PW 5-LIFT STATION/3A	17,932	2012	9,788	1.160	20	11,350
10/23/2017	0009685-CON	RIO DE AGUA VIVA CHURCH DEV. EQUIP	17,600	2017	14,300	1.086	20	15,532
10/17/2017	0009681-CON	SANDHILLS CENTER DEVELOPER CONST	17,200	2017	13,975	1.086	20	15,179
3/31/2008	0008960	WATER LINE SERVICE EXT 328000.8040	15,994	2008	7,797	1.237	20	9,641
7/1/1999	0007764-04	VASS WATER SYS(1995)	15,529	1999	4,707	1.598	35	7,522
7/1/1999	0007757-04	Well Lot #7	15,000	1999	15,000	1.598	999	23,971
7/1/1999	0007757-05	WELL LOT #8	15,000	1999	15,000	1.598	999	23,971
7/1/1999	0007757-06	Well Lot #9	15,000	1999	15,000	1.598	999	23,971
7/1/1999	0007757-07	Well Lot #9A	15,000	1999	15,000	1.598	999	23,971
7/1/1999	0007757-08	WELL LOT #11	15,000	1999	15,000	1.598	999	23,971
7/1/1999	0007757-09	Well Lot #11A	15,000	1999	15,000	1.598	999	23,971

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6/22/2017	0009598	WELL REHABILITATION #17	14,029	2017	11,165	1.086	20	12,127
9/25/2018	0009791	125 TRADE ST UTILITY EASEMENT	12,777	2018	12,777	1.060	999	13,547
3/11/2020	0009862	LEWIS POINT WATERLINE EXTENSION	12,430	2020	11,601	1.029	20	11,934
9/4/2018	0009798	300 MAGNOLIA UTILITY EASEMENT	12,225	2018	12,225	1.060	999	12,962
9/22/2020	0010003	PAVING NEW ROAD CONSTRUCTION	12,189	2020	11,173	1.029	10	11,493
1/10/2017	0009594	.11 ACRES PINEHURST LRK#20160018	11,980	2017	11,980	1.086	999	13,012
5/19/2020	0009908-2	1724 NC 73 HWY EASEMENT	11,814	2020	11,814	1.029	999	12,152
9/26/2018	0009799	4176 MURDOCKSVILLE RD UTILITY EASEMENT	11,332	2018	11,332	1.060	999	12,015
9/30/2011	0009265	UPGRADE PINEWILD LS#4	11,134	2011	5,660	1.184	20	6,699
3/9/2012	0009266	UPGRADE LIFT STATION 10-4	11,005	2012	5,869	1.160	20	6,806
10/1/2013	0009386	SECURITY GATE FOR FRONT ENTRANCE	10,344	2013	6,336	1.143	20	7,241
6/30/2007	0008889	PINEWILD PUMP REPLACEMENT LS PW1	10,131	2007	3,039	1.284	20	3,903
6/5/2018	0009692-CON	BIBEY ROAD DEVELOPER EQUIPMENT	10,000	2018	8,458	1.060	20	8,968
7/1/2019	0009842CON	DOD FOR MANOR INN-PINEHURST	9,600	2019	8,640	1.041	20	8,998
6/30/2007	0008888	PH#10 WELL PUMP REPLACEMENT 3243003526	9,288	2007	2,786	1.284	20	3,578
11/8/2016	0009586	LS 13-2 PARCEL .047 ACRES	9,000	2016	9,000	1.109	999	9,984

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Acq Date	Asset #	Description	Acq Cost	Acq Year	Net Book Value	Inflation Factor	Book Life	Depreciated Replacement Value
12/17/2019	0009906	430 ST ANDREWS DR EASEMENT	8,577	2019	8,577	1.041	999	8,932
7/16/2019	0009846CON	DOD STAR SCHOOL - AEP CHARTER	8,000	2019	7,200	1.041	20	7,498
6/25/2012	0009261	MCPU HYDRAULIC MODEL, FLOAT UPGRADE	8,000	2012	4,367	1.160	20	5,064
6/18/2019	0009779CON	O'REILLY AUTO PART INFASTRUCTURE	7,867	2019	7,048	1.041	20	7,339
9/1/2006	0008811	60' ROAD BORE UNDER US HWY 1	7,435	2006	1,921	1.321	20	2,537
3/1/2010	0009108	WELL#23 328000.8125	7,093	2010	3,073	1.221	20	3,752
11/5/2019	0009850CON	DOD COMMUNITY CENTER PINEHURST	6,496	2019	5,955	1.041	20	6,201
11/21/2014	0009473	SUBMERSIBLE PUMP TREEHOUSE LS	6,347	2014	4,231	1.125	20	4,759
7/1/1999	0007757-03	Well Lot #6	6,000	1999	6,000	1.598	999	9,588
6/30/2014	0009387	WELL 24	5,800	2014	3,746	1.125	20	4,213
10/13/2015	0009517	GREEN VINYL CHAIN LINK/BARBED WIRE PH 3	5,569	2015	3,968	1.123	20	4,457
5/1/2005	0008677	12X30 BLDG REPLACE LAB -WPCP	5,400	2005	1,035	1.363	20	1,411
5/19/2020	0009908	215 DORMIE DR EASEMENT	5,344	2020	5,344	1.029	999	5,497
7/1/1999	0007757-01	Well Lot #3	5,000	1999	5,000	1.598	999	7,990
7/1/1999	0007757-02	WELL LOT #4	5,000	1999	5,000	1.598	999	7,990
9/26/2018	0009792	135 N. TRADE ST UTILITY EASEMENT	4,540	2018	4,540	1.060	999	4,814
9/20/2018	0009794	104 SEVEN LAKES CT UTILITY EASEMENT	4,188	2018	4,188	1.060	999	4,440

Acq Date	Asset #	Description	Acq Cost	Acq Year	Net Book Value	Inflation Factor	Book Life	Depreciated Replacement Value
7/1/1999	0007757-27	Well-Auman Property	4,000	1999	4,000	1.598	999	6,392
11/13/2019	0009907	215 DORMIE DR EASEMENT	3,882	2019	3,882	1.041	999	4,043
12/31/2005	0008717	GENERATOR NC211 BOOSTER STATION	2,700	2005	608	1.363	20	828
3/18/2019	0009795-1	6500 NC 211 HWY UTILITY EASEMENT #2	2,367	2019	2,367	1.041	999	2,465
3/18/2019	0009795	6500 NC 211 HWY UTILITY EASEMENT	2,209	2019	2,209	1.041	999	2,300
11/13/2019	0009907-3	1724 NC 73 HWY EASEMENT	2,182	2019	2,182	1.041	999	2,272
5/21/2019	0009797	150 MCKEITHAN AVE UTILITY EASEMENT	2,074	2019	2,074	1.041	999	2,159
11/24/2019	0009897-1	119 BLUEBIRD LN EASEMENT	2,073	2019	2,073	1.041	999	2,159
5/19/2020	0009908-1	1724 NC 73 HWY EASEMENT	1,983	2020	1,983	1.029	999	2,039
10/8/2019	0009905-1	3 INVERRARY RD EASEMENT	1,903	2019	1,903	1.041	999	1,982
2/5/2020	0009901	2763 MURDOCKSVILLE RD EASEMEN	1,721	2020	1,721	1.029	999	1,770
11/21/2018	0009793	244 SOUTH ST UTILITY EASEMENT	1,703	2018	1,703	1.060	999	1,806
11/24/2019	0009897	119 BLUEBIRD LANE EASEMENT	1,617	2019	1,617	1.041	999	1,684
11/20/2019	0009900-1	BLUEBIRD TRAIL EASEMENT	1,242	2019	1,242	1.041	999	1,293
11/6/2019	0009898	250 OLMSTEAD BLVD EASEMENT	1,231	2019	1,231	1.041	999	1,282
5/1/2019	0009796	200 BEULAH HILL RD UTILITY EASEMENT	1,230	2019	1,230	1.041	999	1,281

Acq Date	Asset #	Description	Acq Cost	Acq Year	Net Book Value	Inflation Factor	Book Life	Depreciated Replacement Value
3/18/2019	0009795-2	6500 NC 211 HWY UTILITY EASEMENT #3	621	2019	621	1.041	999	646
11/2/2019	0009903	BLUEBIRD LANE EASEMENT	556	2019	556	1.041	999	579
11/20/2019	0009900	2825 MURDOCKSVILLE RD EASEMENT	466	2019	466	1.041	999	485
7/21/2020	0010016CON	STARS SCHOOL EASEMENT - DOD	340	2020	340	1.029	999	350
2/5/2020	0009901-1	BLUEBIRD TRAIL EASEMENT	235	2020	235	1.029	999	242
11/1/2019	0009896	199 BLUEBIRD LANE EASEMENT	232	2019	232	1.041	999	242
11/13/2019	0009907-2	215 DORMIE DR EASEMENT	217	2019	217	1.041	999	226
7/1/2019	0009899	NC 1 HWY AEP CHARTER SCHOOLS EASEMENT	132	2019	132	1.041	999	138
12/5/2019	0009902	236 BLUEBIRD LANE EASEMENT	29	2019	29	1.041	999	30